PHENIX Run16 status

Denis Jouan

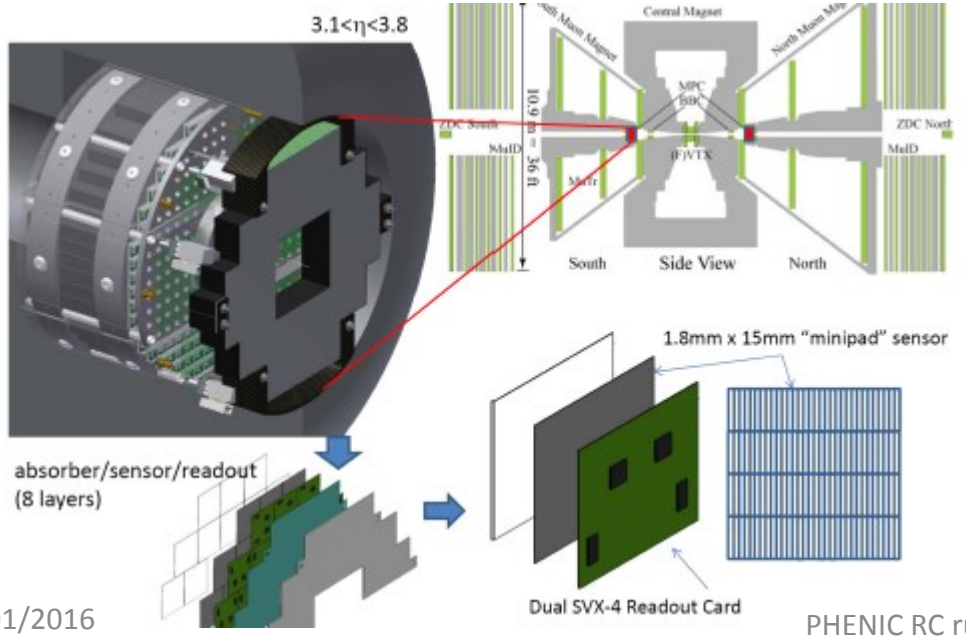
Run16 PHENIX RC

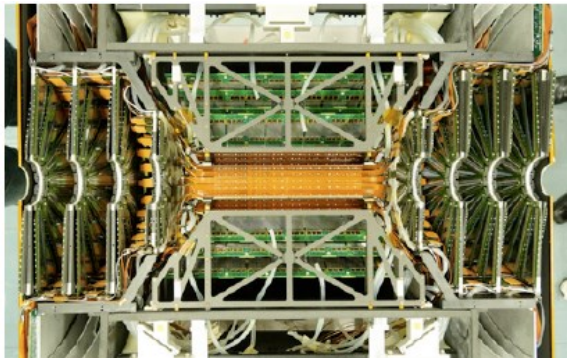
Early presentation…

- I will arrive at BNL on the 6th, tomorrow evening

Context

- Last PHENIX run
- Detector: with FVTX, VTX and MPC+MPC-EX
- AuAu 200: Increasing the dataset, HF-> double the data, complete HF measurement
- dAu energy scan : onset of QGP in small systems





Au-Au 200 GeV

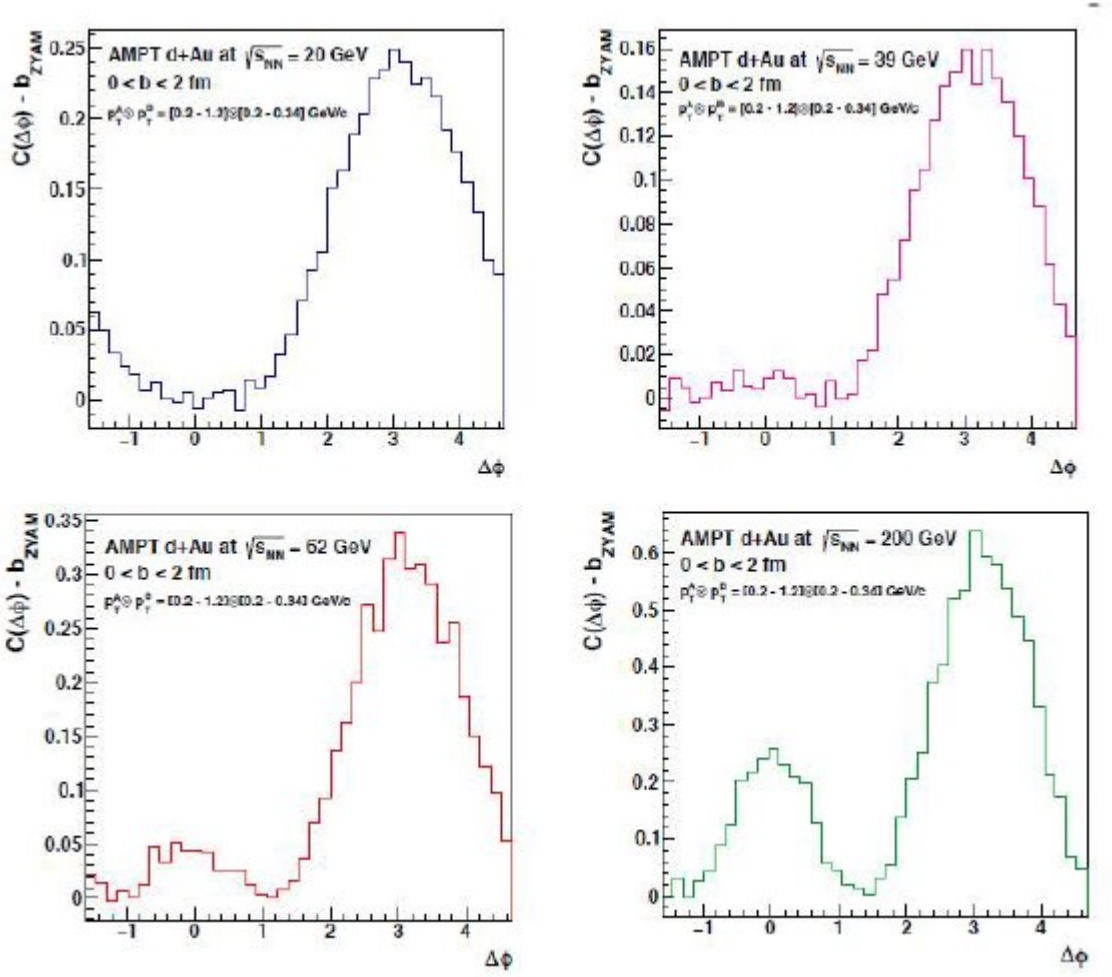
- **Au+Au @ 200 GeV for 10 weeks**

Goal is 1.8 /nb (12 billion minimum bias events) recorded within |z| < 10 cm (added to the 2.3 /nb recorded in the longer and very successful Run-14)

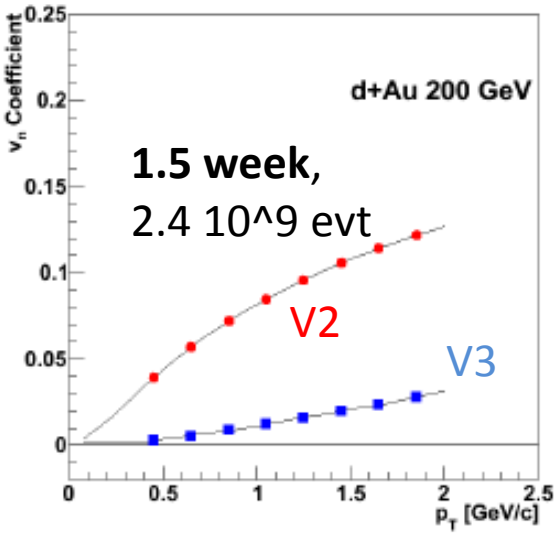
- An increase of statistics, in particular if the z-vertex distribution is sharper.
- With the ultimate PHENIX set up, bringing additionnal information for tracking in HF studies: double the data, complete HF measurement

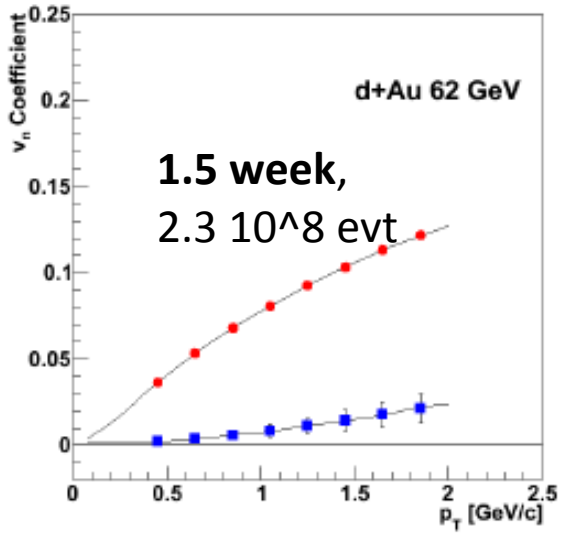
BES at RHIC: *The rise of the ridge*

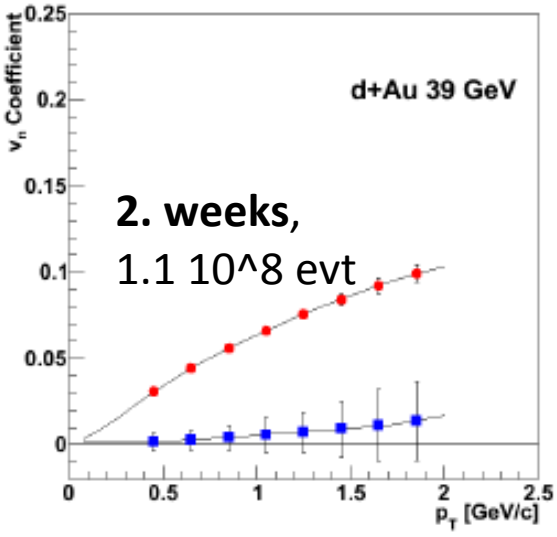
- Same side long range correlations appears in dAu 200GeV, Au side
- What evolution with energy ?
- Sensitive to inner processes (melted strings, QGP, …)



This is simulation. What are error bars in measurements ?







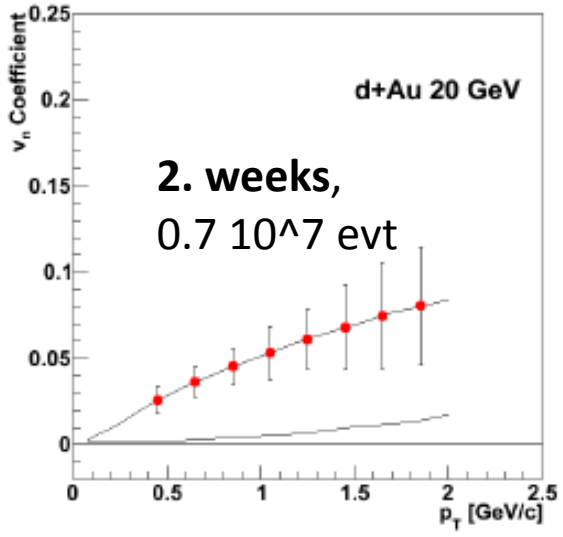


Figure 3.17: Shown are projected uncertainties for measurements of v_2 and v_3 coefficients in 0-5% central d+Au collisions at 200, 62, 39, and 20 GeV energies in the top left, top right, lower left, and lower right panels respectively. For the much smaller data sample at the lowest energy of 20 GeV, we do not quote projected uncertainties for v_3 since it is not clear is the event-plane method determination will be robust.

RBUP dAu request: 7 weeks

- 0.5 week setup
- **2.0 week d+Au 20** GeV 0.9 /nb/week
- 0.5 week change
- **2.0 week d+Au 39** GeV 3.8 /nb/week
- 0.5 week change
- **1.5 week d+Au 62** GeV 10.6 /nb/week
- 0.5 week change
- **1.5 week d+Au 200** GeV 110 /nb/week
- This plan will yield 2.4 billion, 230 million, 110 million, and 7 million central d+Au events (z<10cm, 0-5% centrality) at energies of 200, 62, 39, 20 GeV respectively
- This is our request (4 energies, 7 weeks), we are considering **how to adapt it to 5 weeks , with an optimization of the relative lengths** of the periods

dAu: beam energy scan

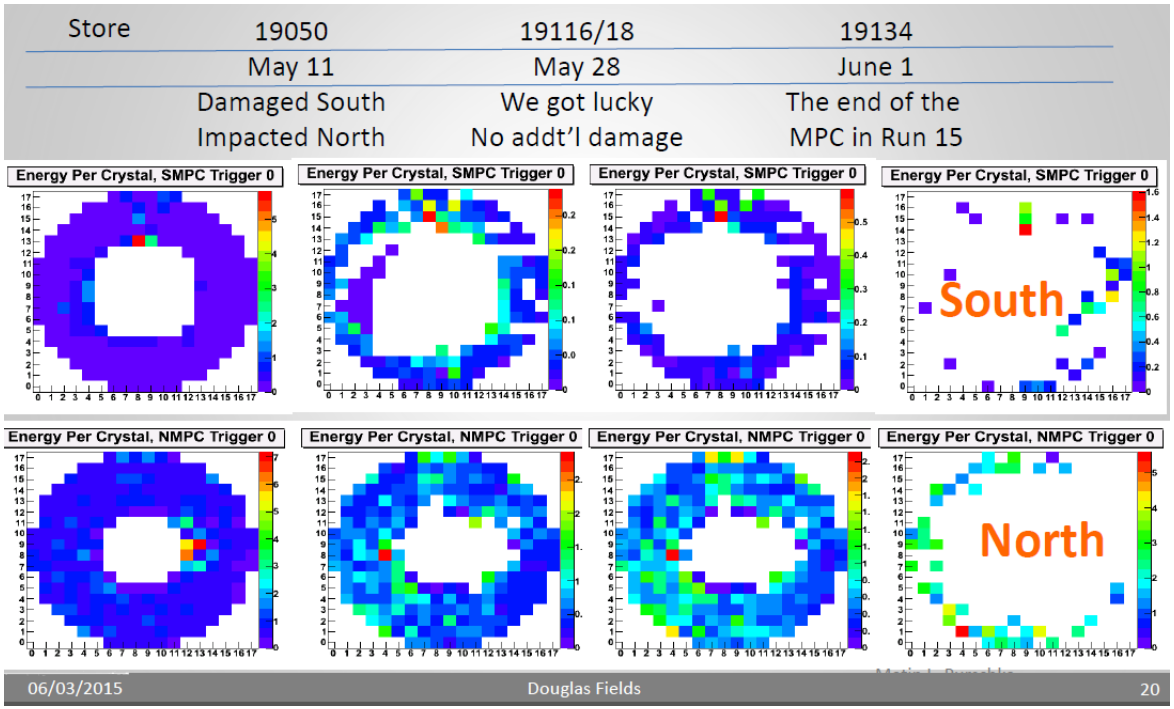
- In conclusion, the physics case is exciting and outstanding, the 4 energies are important. At this stage we need all of them, with sufficient precision. in >=5 weeks **(PAC: "at least 5 weeks")[*].**
- The values 19.6, 39., 62.4, and 200.7 GeV/nucleon center-of-mass energy are OK, and complete the available set. In particular 62.4, 200.7 and 19.6 GeV
- We **foresee** an **online analysis** that will give a rapid look at v2 in the central arm, and allow **some optimization** of the relative lengths of the periods, and is possible thanks to 15 years of improvement efforts in PHENIX.
- calendar under pressure, implies optimization ?

[*] are 43 days compatible with 5 physics weeks ?

Calendar

- (Cooldown: delayed 2 weeks)
- (1st Time Meeting: Jan 5)
- White/Pink Sheets: done ; Blue: on going
- Shield wall close to ready
- Watch shifts: 12 January
- Start flammable gas next week
- Cooldown 19 January
- Beam setup, Expect to lose access to IR on Jan. 23 ?
- Full shifts 26 January
- First (physics) collisions in PHENIX expected by Feb

Protection from beam loss



A dump on the DX magnet ?

- Au beam in asymmetric collisions has been very destructive for some detectors (MPC, VTX strips).
- Task force after run15: Improved understanding of ways to prevent damage to experiments from abort kicker prefires
- Thanks to implementations made by CAD similar events are not likely in the future

MPC

Repairing is complete

and Protection of each individual channel has been added:

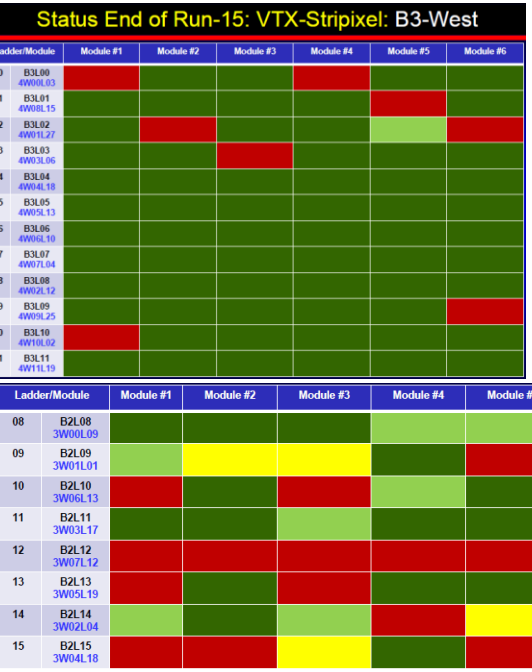
Should handle at least 400x more light.

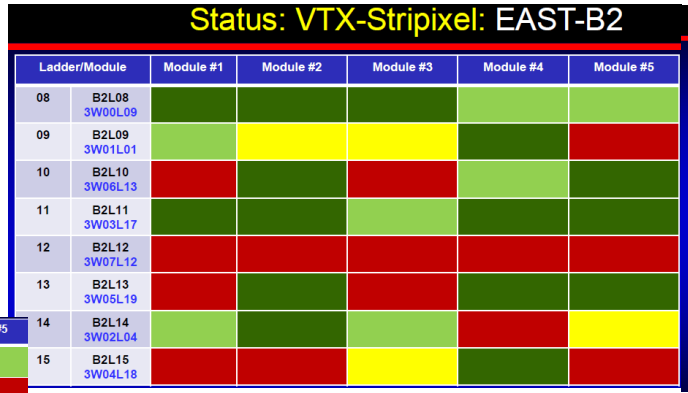
MPC is ready (and should probably resist)

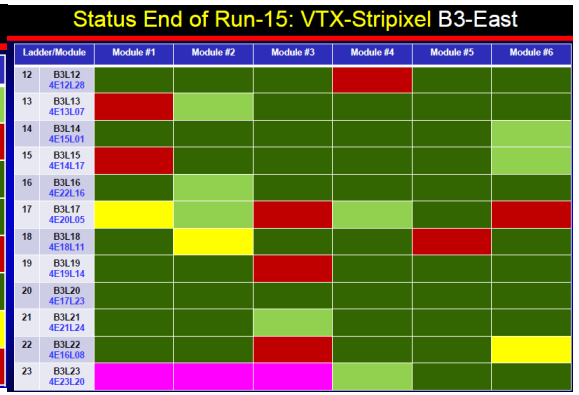
Also: MPC-EX cooling improvements, repair south half-layer, and firmware upgrade

VTXSP

PAST: END of run 15

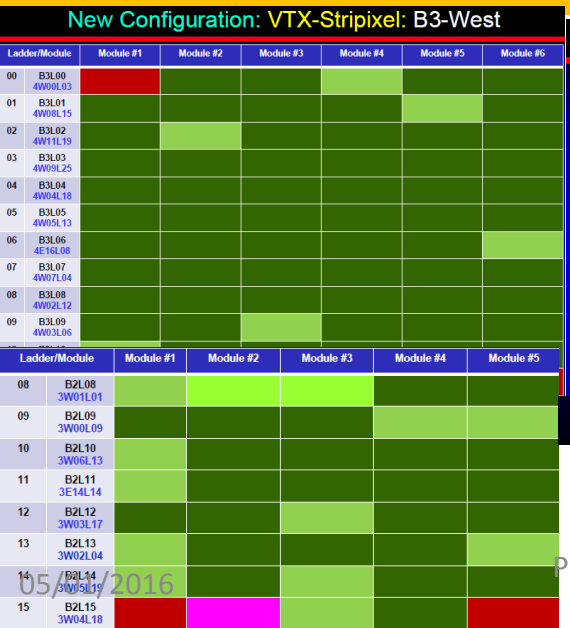


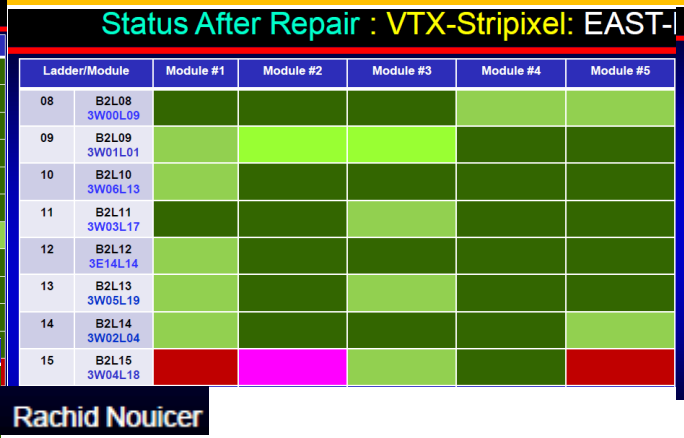


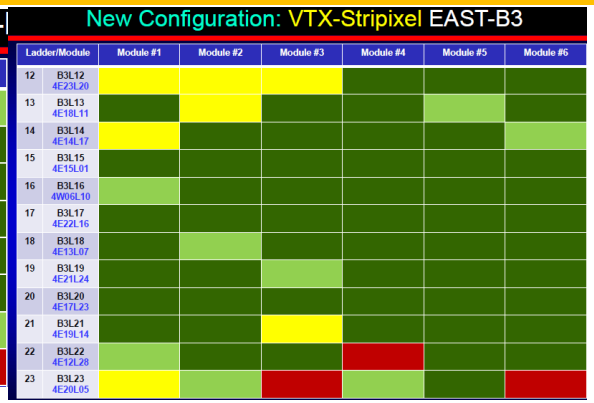


After repairs of silicon modules and repositionning:

NOW ***: Beginning of run 16***







Rachid Nouicer

Sub-system commissioning/debugging

- Initial setup started from end 2015
- **All detector subsystems installed, connected, and ready for commissioning**
- F/VTX needs one day for interlock checks
- PHENIX Magnet Review/Checks Done (white sheets)
- PHENIX Rack Safety Checks Done (pink sheets)
- PHENIX Safety Checks To Be Done This Week (blue sheets)
- Shield Wall Stacked, Almost Ready to Roll In
- UPS Maintenance Underway
- Non-flammable Gases ready to flow (for MUID check-out)
- Flammable Gas Flow Starting Next Week
- **Subsystems will be turned to experts next week**
- Running with cosmics will start this week
- Access reduced after ~23 January?

Shifts

- Shifts: mostly covered up to Easter
- Run Coordinator : DJ at BNL from the 7th january
- Period Coordinators : up to Easter:

01 12 John Haggerty
01 26 Sarah Campbell
02 09 Martin Purshke
23 02 Jin Huang
03 08 Hubert Van Hecke

Thanks to the various beam periods foreseen

We look forward to

a very fruitful data taking

for the last PHENIX RUN

THANKS